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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/728,925

12/08/2003

Kia Silverbrook

MTB10US

9676

24011

7590

01/03/2006

SILVERBROOK RESEARCH PTY LTD  
393 DARLING STREET  
BALMAIN, NSW 2041  
AUSTRALIA

EXAMINER

HSIEH, SHIH WEN

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 01/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/728,925

Applicant(s)

SILVERBROOK, KIA

Examiner

Shih-wen Hsieh

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 7-9, 17-19, 21-30 and 37-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 10-16, 20, 31-36 and 40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12-12-03</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election without traverse of species I in the reply filed on Nov. 15, 2005 is acknowledged. Please be advised that portions of the claims being elected in the Remarks are: 10-16 (not 10-17).

***Information Disclosure Statement***

2. Our PALM system indicates an IDS dated Aug. 5, 2004 being filed with this application. However, this IDS is not found in the electronic file (the EDAN). Therefore, only IDS dated Dec. 12, 2003 is being send back to the Applicant in this office action. Please be advised.

***Claim Objections***

3. Claims 5 and 15 are objected to because of the following informalities:

In regard to:

Claims 5 and 15:

Please change "the width" into "a width" to correct a minor lack of antecedent basis problem.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1, 5, 6, 10, 11, 15, 16, 20, 31, 35, 36 and 40 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 4, 8, 9, 11, 12, 16, 25, 27, 28 and 32 of copending Application No. 10/728,783 (Silverbrook). Although the conflicting claims are not identical, they are not patentably distinct from each other because both cases deal with etching a hole on a wafer partially on a drop ejection side and etching a supply passage from the liquid supply side of the wafer and connected to the hole.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Below is a table of comparison between claims to indicate their obviousness:

<u>10/728,925</u>	<u>10/728,783</u>
<p>1. An inkjet printhead comprising: a plurality of nozzles; a plurality of liquid passages leading to each nozzle respectively for providing ejectable liquid to the associated the nozzle; drop ejection actuators and associated drive circuitry corresponding to each nozzle respectively, and; the nozzles, ejection actuators, associated drive circuitry and liquid passage being formed on and through a wafer using lithographically masked etching techniques; wherein, the wafer has a drop ejection side and a liquid supply side; such that, each of the liquid passages is formed by etching a hole partially through the wafer from the drop ejection side, and etching a supply passage from the liquid supply side of the wafer to the hole; wherein, the hole extends past the drive circuitry of the nozzle by a distance that ensures that the drive circuitry is not damaged when the supply passage is etched to the hole.</p> <p>5. An inkjet printhead according to claim 1 wherein the width of the supply passage is less than 28 microns.</p> <p>6. An inkjet printhead according to claim 1 wherein the drop ejection actuators are thermal bend actuators.</p> <p>10. An inkjet printhead according to claim 1 wherein the printhead is a pagewidth printhead.</p> <p>11. A method of ejecting drops of an ejectable liquid from an inkjet printhead, the printhead comprising a plurality of nozzles, a plurality of liquid passages leading to each nozzle respectively, drop ejection actuators and associated drive</p>	<p>1. An inkjet printhead comprising: a plurality of nozzles; a plurality of liquid passages leading to each nozzle respectively for providing ejectable liquid to the associated the nozzle; droplet ejection actuators and associated drive circuitry corresponding to each nozzle respectively, the nozzles, ejection actuators, associated drive circuitry and liquid passage being formed on and through a wafer using lithographically masked etching techniques; wherein, the wafer has a droplet ejection side and a liquid supply side; such that, each of the liquid passages is formed by etching a hole partially through the wafer from the droplet ejection side, and etching a passage from the liquid supply side of the wafer to the hole; wherein, the width of the supply passage exceeds the width of the hole by an amount that will ensure that a fluid connection is established with the hole, having regard to the tolerances of the etching process.</p> <p>3. An inkjet printhead according to claim 1 wherein the width of the supply passage is between 10 microns and 28 microns.</p> <p>4. An inkjet printhead according to claim 1 wherein the droplet ejection actuators are thermal bend actuators.</p> <p>8. An inkjet printhead according to claim 1 wherein the printhead is a pagewidth printhead.</p> <p>9. A method of ejecting drops of an ejectable liquid from an inkjet printhead, the printhead comprising a plurality of nozzles, a plurality of liquid passages leading to each nozzle respectively, droplet ejection actuators and associated</p>

circuitry corresponding to each nozzle respectively, the nozzles, ejection actuators, associated drive circuitry and liquid passage being formed on and through a wafer using lithographically masked etching techniques, such that the wafer has a drop ejection side and a liquid supply side, and, each of the liquid passages is formed by etching a hole partially through the wafer from the drop ejection side, subsequently filling the hole with resist then etching a supply passage from the liquid supply side of the wafer to the resist before stripping the resist from the hole, wherein the hole extends past the device circuitry of the nozzle by a distance that ensures that the drive circuitry is not damaged when the supply passage is etched to the hole, the method of ejecting drops comprising the steps of: providing the ejectable liquid to each of the nozzles using the associated liquid passage; and actuating the drop ejection actuator to eject drops of the ejectable liquid from the nozzle.

**15.** A method according to claim 11 wherein the width of the supply passage is less than 28 microns.

**16.** A method according to claim 11 wherein the drop ejection actuators are thermal bend actuators.

**20.** A method according to claim 11 wherein the printhead is a pagewidth printhead.

**31.** A printer system incorporating an inkjet printhead comprising: a plurality of nozzles, a plurality of liquid passages leading to each nozzle respectively for providing ejectable liquid to the associated the nozzle; drop ejection actuators and associated drive circuitry corresponding to each nozzle respectively, and; the nozzles, ejection actuators, associated drive

**drive** circuitry corresponding to each nozzle respectively, the nozzles, ejection **actuators**, associated **drive** circuitry and liquid **passage** being formed on and through a **wafer** using lithographically masked etching techniques, such that the **wafer has a drop ejection side and a liquid supply side**, and, each of the liquid **passages** is formed by etching a **hole partially** through the **wafer from the drop ejection side**, subsequently filling the **hole** with resist then etching a **passage from the liquid supply side of the wafer** to the resist before stripping the resist from the **hole**, wherein the width of the supply **passage** exceeds the width of the **hole** by an amount that will ensure that a fluid connection with the **hole** is established having regard to the tolerances of the etching process, the method of ejecting drops comprising the steps of: providing the ejectable liquid to each of the nozzles using the associated liquid **passage**; and **actuating** the droplet ejection **actuator** to eject droplets of the ejectable liquid from the nozzle.

**11.** A method according to claim 9 wherein the width of the supply passage is between 10 microns and 28 microns.

**12.** A method according to claim 9 wherein the droplet ejection actuators are thermal bend actuators.

**16.** A method according to claim 9 wherein the printhead is a pagewidth printhead.

**25.** A printer system incorporating an inkjet printhead comprising: a plurality of nozzles; a plurality of liquid passages leading to each nozzle respectively for providing ejectable liquid to the associated the nozzle; droplet ejection actuators and associated drive circuitry corresponding to each nozzle respectively, the nozzles, ejection actuators, associated

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circuitry and liquid passage being formed on and through a wafer using lithographically masked etching techniques; wherein, the wafer has a drop ejection side and a liquid supply side; such that, each of the liquid passages is formed by etching a hole partially through the wafer from the drop ejection side, subsequently filling the hole with resist then etching a supply passage from the liquid supply side of the wafer to the resist before stripping the resist from the hole; wherein, the hole extends past the drive circuitry of the nozzle by a distance that ensures that the drive circuitry is not damaged when the supply passage is etched to the hole.

**35.** A printer system according to claim 31 wherein the width of the supply passage is less than 28 microns.

**36.** A printer system according to claim 31 wherein the droplet ejection actuators are thermal bend actuators.

**40.** A printer system according to claim 31 wherein the printhead is a pagewidth printhead.

drive circuitry and liquid passage being formed on and through a wafer using lithographically masked etching techniques; wherein, the wafer has a droplet ejection side and a liquid supply side; such that, each of the liquid passages is formed by etching a hole partially through the wafer from the droplet ejection side, and etching a passage from the liquid supply side of the wafer to the hole; wherein, the width of the supply passage exceeds the width of the hole by an amount that will ensure that a fluid connection is established with the hole, having regard to the tolerances of the etching process.

**27.** A printer system according to claim 24 wherein the width of the supply passage is between 10 microns and 28 microns.

**28.** A printer system according to claim 24 wherein the droplet ejection actuators are thermal bend actuators.

**32.** A printer system according to claim 24 wherein the printhead is a pagewidth printhead.

In regard to:

Claim 1:

The subject matters such as: plurality of nozzles, plurality of liquid passages, drop ejection actuators and their associated drive circuitry, a wafer, a partially formed hole, the drop ejection side, and the liquid supply side and limitations are the same as those in co-pending application 10/728,783.

The difference between the instant application and the co-pending application is the wherein paragraph:

wherein, the hole extends past the drive circuitry of the nozzle by a distance that ensures that the drive circuitry is not damaged when the supply passage is etched to the hole.

However, it would have been an obvious matter as a design consideration and a commonsense that the etched liquid passage has to keep a certain distance away from the drive circuitry such that the routing of the passage will not jeopardize/interfere the function of the drive circuitry.

Claims 5, 6 and 10:

These claims are the same as claims 3, 4 and 8 of co-pending application 10/728,783.

Claim 11:

This claim corresponds to claim 9 of the co-pending application 10/728,783 and is rejected on the basis as set forth for claim 1 discussed above, i.e., subject matters and limitation in this claim as the same as those in claim 9 of the co-pending application 10/728,783. The difference of the wherein paragraph in this claim with that in claim 9 is the same as that discussed for 1 above. The method steps are the same in both cases.

Claims 15, 16 and 20:

These claims are the same as claims 11, 12 and 16 of co-pending application 10/728,783.

Claim 31:

This claim is rejected on the basis as set forth for claim 1 discussed above.

Claims 35, 36 and 40:



These claims are the same as claims 27, 27 and 32 of co-pending application 10/728,783.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2-4, 12-14 and 32-34 are rejected under 35 U.S.C. 103(a) as being obvious over Silverbrook (10/728,783).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer

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in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2). Both cases deal with etching a hole partially into a wafer from the drop ejection side, and etching a liquid passage from a liquid supply side of the wafer connecting to the hole.

In regard to:

Claim 2-4:

The device of Silverbrook (US 2004/0104955) DIFFERS from claims 2-4 in that it does not teach:

wherein the distance that the hole extends past the drive circuitry of the nozzle is between 10 microns and 50 microns (claim 2);

wherein the distance that the hole extends past the drive circuitry of the nozzle is between 20 microns and 40 microns (claim 3); and

wherein the distance that the hole extends past the drive circuitry of the nozzle is between 30 microns and 40 microns (claim 4).

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to design such a distance so as not to interfere with the drive circuitry in forming the liquid passage, since it has been held that where the general conditions of a claim are disclosed in the prior art (in this case, the co-pending application), discovering the optimum or workable ranges such as 10 microns to 50 microns, involves only routine skill in the art, refer to MPEP 2144.05 II A.

Claim 12-14:

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wherein the distance that the hole extends past the drive circuitry of the nozzle is between 10 microns and 50 microns (claim 12);

wherein the distance that the hole extends past the drive circuitry of the nozzle is between 20 microns and 40 microns (claim 13); and

wherein the distance that the hole extends past the drive circuitry of the nozzle is between 30 microns and 40 microns (claim 14).

Rejection:

Same as those for claims 2-4 discussed above.

Claims 32-34:

wherein the distance that the hole extends past the drive circuitry of the nozzle is between 10 microns and 50 microns (claim 32);

wherein the distance that the hole extends past the drive circuitry of the nozzle is between 20 microns and 40 microns (claim 33); and

wherein the distance that the hole extends past the drive circuitry of the nozzle is between 30 microns and 40 microns (claim 34).

Rejection:

Same as those for claims 2-4 discussed above.

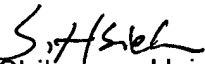
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-wen Hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 7:30AM -5:00PM.

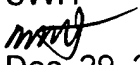
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, S D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**SHIH-WEN HSIEH**  
**PRIMARY EXAMINER**

  
Shih-wen Hsieh  
Primary Examiner  
Art Unit 2861

SWH  
  
Dec. 29, 2005